WATER CAPACITY EVALUATION FOR THE IMPERIAL BEACH RESORT

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PROJECT DESCRIPTION

A proposed development project located at 1046 Seacoast Drive in the City of Imperial Beach, California, includes the demolition of several existing commercial buildings and the construction of a hotel and resort. The proposed Imperial Beach Resort includes a bar and kitchen in addition to a 100 room capacity resort hotel. This report analyses the capacity of the existing California American Water Company drinking water system to provide adequate water pressure and firefighting flows for the proposed project.

CALCULATIONS

The building for the proposed project is a Type II-B, Fully Sprinkled Building. The building is proposed to have approximately 98,009 square feet.

According to NFPA 13 requirements, Table B105.1, Type II-B buildings between 97,901 and 106,800 are required to have a fire flow of 6,750 gallons per minute for four hours, measured at a residual pressure of 20 psi. Per section B105.2.1, "a reduction in fire-flow of up to 75% as approved, is allowed when the building is provided with an approved automatic sprinkler system installed. . ." The proposed building is to be equipped with an approved automatic fire sprinkler system, and is therefore eligible for the 75% reduction. With this reduction, the required fire flow is 1687.5 gpm.

California American Water provided flow data showing that static water pressure at the site is approximately 81.0 PSI and that when flowing 1,500 gpm the residual pressure is 67.8 psi. Using the Hazen-Williams formula, we calculated the available fire flows. When calculated to a residual pressure of 20 psi, we calculated a flow of 3,420 gpm.

$Q_R = Q_F \times (H_R / H_F)^{0.54}$

Where:

QR = Available Flow at 20 psi (in GPM)

QF = Observed test flow

HR = Static Pressure minus 20 psi

HF = Static Pressure minus Residual Pressure

Calculations of the flows have been included in Appendix 2 of the report.

CONCLUSIONS

Our calculations show that the existing water facilities are capable of flowing in excess of the required 1,688 gpm during the average maximum daily flows. The existing water facilities are capable of flowing approximately 3,428 gpm at a residual pressure of 20 psi, which is in excess of the required flows of 1688 gpm.

Figure 1. Water Exhibit from CalAm Water

Figure 2 Fire Flow Calculations

Fire Flow Calculations

Static Pressure	81	psi
Residual Pressure	67.8	psi
Calculated Pressure	20	psi
Gauged Flow	1500	gpm
Calculated Flow	3428	gpm

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